UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

MEMORANDUM ON FOREST INSECT CONTROL FROM REGIONAL FORESTER TO FOREST SUPERVISORS

1931

U. S. GOVERNMENT PRINTING OFFICE: 1928 J 76133

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
NORTHERN REGION

ADDRESS REPLY TO
REGIONAL FORESTER
AND REFER TO

FEDERAL BUILDING,
MISSOULA, MONTANA

S
Insect Control

May 13, 1931.

S-423

FOREST SUPERVISORS:

For the guidance of Forest Supervisors in recommending or initiating control measures in the case of insect infestations, an expression of policy seems to be required. Appropriations for insect control projects have been more liberal in the last few years than in the past, and it now seems possible to count on sufficient funds to place insect control on a more systematic basis.

Some classes of insect epidemics can be controlled by known methods. Other classes cannot be practically controlled on a large scale on the basis of our present knowledge.

In the first class come practically all bark beetle infestations. This letter applies chiefly to this class.

In the second class come most of the defoliating insects, such as spruce budworm, pine butterfly, aphis, sawfly, etc. No practicable plan for controlling insects of this class in large forest units has been devised, though local protection by spraying is possible. Until some practicable method of control of defoliating insects is discovered it is desired to continue reports on the activity of these insects so that the Service will be informed as to the progress of infestations, but control work will not ordinarily be expected, unless tress of high scenic value around resorts, camp grounds, etc., become involved.

In this Region mountain pine beetle epidemics in lodgepole pine, white pine, and yellow pine are by far the most serious sources of insect loss, and are the only class of infestation in which control measures are apt to be undertaken.

The Douglas fir beetle has caused considerable loss in Douglas fir, and at the present time is very active, but owing to the low value of Douglas fir, and the fact that known epidemics have never been anything like as severe as mountain pine beetle epidemics, no control work with this species will be considered at present. The same thing holds true of the several species of bark beetles attacking white fir and Alpine fir.

Western pine beetles have proved a serious enemy of yellow pine in other Regions, though there are no serious outbreaks recorded for this Region. However, it is known to be a dangerous enemy of yellow pine and should be considered on the same basis as the mountain pine beetle.

The mountain pine beetle has proved itself such a dangerous enemy of white pine, lodgepole pine and yellow pine that it will be the general policy in the Region to undertake control of epidemics or incipient epidemics whenever control seems possible with a justifiable expenditure of funds, provided necessary appropriations can be obtained.

Unfortunately, at the present time several epidemics exist which have gotten so far beyond control that it does not seem practicable to attack them. This condition exists now in the following localities:

Kaniksu Forest - entire Forest. The loss in white pine and white bark pine since 1926 has been very large, but the epidemic is so widespread over the Forest that control seems improacticable.

Pend Oreille Forest. The infestation in white pine on the west side of the Kootenai River, particularly in Smith and Boundary Creeks, has gone so far that considering the limited amount of white pine endangered and its comparative inaccessibility, control measures will not be undertaken.

Kootenai Forest. In the northwest corner of the Forest, including Pete Creek and the Upper Yaak, and extending up into Canada, the beetle infestation in lodgepole pine, and to some extent in white pine, has gotten beyond reasonable hopes of control. Control measures are under way in the white pine stands detached from the main lodgepole epidemics. Should it develop that the infestation in these areas is being fed from the outbreak on the Upper Yaak, further control may be discontinued.

Blackfeet Forest. The principal white pine stands on this Forest are badly affected, together with a good deal of lodgepole infestation. The values at stake are not considered great enough to justify control.

Flathead Forest. There is considerable infestation in both white pine and lodgepole on this Forest on which we should have more complete information in order to determine whether the white pine values justify the cost of control.

Other white pine Forests. The white pine stands on the Clearwater, St. Joe, Coeur d'Alene, Lolo, Cabinet, and most of the Kootenai and Pend Oreille should be given as complete protection as possible. Control projects are under way on the Coeur d'Alene, Kootenai, and Clearwater, and it is a definite responsibility of the Supervisors of these seven Forests to see that no new infestation is allowed to develop into epidemics before being reported with recommendations for control.

Central Montana and Idaho lodgepole epidemics.

A tremendous attack of mountain pine beetle in lodgepole pine now extends over the Continental Divide Forests in Montana and the Central Idaho Forests. The main body of the infestation includes the Salmon and Idaho Forests in Region 4, and is spreading up through the Nezperce and Selway. In Montana it includes the former Missoula Forest, the Bitterroot, the Beaverhead, most of the Deerlodge, and part of the Helena. The severity of the attack is indicated by the fact that six million trees have been attacked on the Beaverhead in the past four years. An attempt was made to check the epidemic on the Bitterroot and Beaverhead in 1926, 1927 and 1928, but the attempt was given up as hopeless.

The present policy is to do no further work on the main body of the attack, but to try to protect the outlying Forests to the East. Control work is now starting on the Madison, and several Forests in Region 4 adjoining Yellowstone Park. The Gallatin, Absaroka, Beartooth, Jefferson, and the Big Belt division of the Helena are still free of infestation, and if sufficient appropriations are available it will be the plan to vigorously attack any incipient infestation which appears in those units. As in the white pine Forests, it is a definite responsibility of each Supervisor and each district ranger to detect and report any indication that mountain pine beetle is getting beyond the endemic stage.

It is a matter of some difficulty to define just when the need for control measures is indicated, but the following principles are given as guidance in recommending control measures in both lodgepole and white pine stands.

Though difficult to separate the endemic or normal infestation of the mountain pine beetle from the advance of an endemic or the initial stages of a normal development, there are several methods which can be employed by which some light can be thrown on the subject.

1. Increase in the annual loss: If Forest officers charged with the responsibility of preventing insect epidemics within certain areas are familiar with the status of insect conditions within such territories, they will discover any marked increase in the annual loss before a serious epidemic can develop. To check any decision as to the increase or decrease of an outbreak, a few miles of sample strip, on which the red-tops (trees attacked during the previous season) are compared to the current year's attacks, will offer more definite data upon which one's opinion can be based.

2. Occurrence of the infestation: Normal or endemic infestations usually occur as individuals, or in small groups of two or three trees scattered throughout the area. The occurrence of infested trees in larger groups can nearly always be taken as an indication of a pending outbreak requiring immediate attention.

3. Condition of insect broods: During increasing epidemics of the mountain pine beetle in lodgepole pine, the trees are heavily attacked and the insect broods are large and vigorous. During endemic lodgepole pine

situations, the broods are vastly different from those encountered during epidemic conditions. The attacks are light and there are seldom more insects emerging from the tree than had attacked the previous season. This is not true with endemic conditions in white pine, as very often the broods encountered during these situations are equally as heavy as during epidemic conditions. However, when isolated infested trees are encountered in lodgepole pine forest, the condition of the insect broods will often prove to be of assistance in determining the status of the infestation.

4. Character of individual trees attacked: During endemic or normal insect infestations in lodgepole pine, the trees selected for attack by the mountain pine beetle are nearly always scrubby, weakened and decadent individuals, while during epidemic or pending outbreaks, there is apparently no selection of hosts aside, of course, from that of diameters. Again this condition does not exist in white pine, for during endemic conditions, apparently healthy trees are selected for attack, and though the attack is perhaps not as heavy, this fact would be hard to determine and could not be used to any advantage.

In summarizing these different points it would seem that though they will all serve to assist in arriving at a decision, the best guide to follow is one's familiarity with the area in question, and the running of a few sample strips.

Allotments for individual insect control projects are made by the Washington Office on the basis of reports from all Regions due in Washington December 1. If the regular appropriation is not sufficient a deficiency appropriation may be requested, and the Forest Service has been successful in the last two years in securing reasonably adequate appropriations for needed control projects. This money is allotted in time for spring control jobs.

It is necessary, in order to secure an allotment of funds, to obtain a reasonably accurate estimate of costs. This estimate must necessarily be done in the fall after September 1. To make an adequate estimate it is necessary to make a strip survey of the infested area. Usually chain-wide strips on paced lines half a mile apart or one mile in the case of large epidemics are adequate. All attacked trees on the strips are counted and the number per acre applied to the total area of each unit. For small infestations it is expected that each Forest should direct this work. For the larger projects, such as the present Coeur d'Alene, Kootenai and Madison projects, some assistance will be given the Forests involved.

I again want to emphasize the need for early detection of beetle epidemics so that control work may be initiated before the situation gets beyond control, and the responsibility of each Forest for detecting and reporting such conditions.

Very truly yours,

EVAN W. KELLEY,
Regional Forester,
By Glenn Smith Acting.

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